



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

John C. Parsons : Examiner: Arden B. Sperty

U.S. Serial No. 09/883,520 : Group Art Unit: 1771

Filed: June 18, 2001

Docket No. 1931.VIN

For: WATER DISPERSIBLE, SALT
SENSITIVE NONWOVEN MATERIALS

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

DECLARATION UNDER 37 CFR 1.132

Steven P. Pauls, co-inventor of the subject matter of the above-noted patent application hereby declares that:

1. He has worked in the field of polymer technology for 24 years, and that he is a co-inventor of the pending '520 application referenced above (sometimes referred to hereafter simply as the "pending application"), which is directed to fibrous webs having emulsion binders which include salt-sensitive resins.

2. That the pending application states on page 6 that the salt-sensitive polymers which are used in the webs of the invention may be fabricated according to United States

Patent Application Serial No. 09/540,033, which is also incorporated by reference into the pending application. Moreover, the '033 applicaiton has now issued as US Patent No. 6,683,129 to *Eknoian*.

3. That he understands from counsel that claims 1, 14, and 15 of the pending application have been amended to recite specific types of hydrophilic and hydrophobic monomers, and to recite that the salt-sensitive polymer is colloid-stabilized. Claim 1, reproduced below, is representative:

Amended claim 1. A non-woven material comprising:

- a) a web of fibers; and
- b) an emulsion binder comprising a colloid-stabilized, tap water-dispersible polymer, wherein said colloid stabilized, tap water-dispersible polymer is non-dispersible in aqueous solutions containing 0.5 weight percent or more of an inorganic salt, and wherein said colloid stabilized, tap water-dispersible polymer comprises from 1 to 100 percent by weight of a hydrophilic monomer selected from the group consisting of acidic monomers containing a carboxylic acid moiety, dicarboxylic acid moiety, a sulfonic acid moiety, or combinations thereof, and from 0 to 99 percent by weight of at least one non-hydrophilic monomer selected from the group consisting of (meth)acrylates, maleates, (meth) acrylamides, vinyl esters, and combinations thereof, wherein said polymer has a Tg of from -40°C to +105°C, and wherein said binder comprises an aqueous emulsion residue which exhibits salt sensitive dispersibility in tap water.

4. That he understands from counsel, that new claim 17 has been added, directed to nonwoven materials having an emulsion binder whose monomer components are selected and present in amounts needed to provide salt-sensitivity. Claim 17 is reproduced below for reference.

Claim 17. A non-woven material comprising:

- a) a web of fibers; and
- b) an emulsion binder which includes an aqueous, colloid stabilized emulsion residue which comprises from 1 to 100 percent by weight of a hydrophilic monomer and from 0 to 99 percent by weight of at least one non-hydrophilic monomer, wherein said hydrophilic monomers and said hydrophobic monomers are selected and present in amounts such that the aqueous, colloid stabilized emulsion residue is dispersible in water, yet non-

dispersible in aqueous solutions containing 0.5 weight percent or more of an inorganic salt.

5. That, in his opinion, a person ordinarily skilled in the art of emulsion resins, given the disclosure in the pending application and the '033 application, would be able to make and use the webs claimed in the pending application without undue experimentation.
6. That the pending application, in addition to disclosing working examples, lists specific examples of suitable hydrophilic monomers, other ethylenically unsaturated comonomers, and protective colloids, which may be used to make the salt-sensitive polymers that are included in the emulsion binder composition.
7. Furthermore, to supplement the guidance given in the pending application, the '033 application was incorporated therein by reference. The '033 application provides extensive knowledge directed to making suitable salt-sensitive polymers, including 23 working examples. The examples are summarized in the table in the '033 application, reproduced below for reference.

Monomer Composition	Surfac-tant	Sub-strate	Solubility Tap 3% NaCl
60 MAA/25 BA/15 2EHA	Yes	Glass, Hair, Wood	Yes No
60 MAA/25 BA/15 2EHA	No	Glass, Hair, Wood	Yes No
50 MAA/30 BA/20 2EHA	Yes	Glass	Yes No
30 MAA/40 BA/30 2EHA	No	Glass	Yes No
60 MAA/25 BA/15 2EHA/5 VA	Yes	Glass	Yes No
60 MAA/25 BA/15 2EHA/5 VA	No	Glass	Yes No
60 MAA/25 BA/15 2EHA/5 MOM	Yes	Glass	Yes No
60 MAA/25 BA/15 2EHA/5 MOM	No	Glass	Yes No
60 MAA/25 BA/15 2EHA/5 MAH	Yes	Glass	Yes No
60 MAA/25 BA/15 2EHA/5 MAH	No	Glass	Yes No
60 MAA/25 BA/15 2EHA/5 AMPS	Yes	Glass	Yes No
60 MAA/25 BA/15 2EHA/5 AMPS	No	Glass	Yes No
50 VA/50 MOM	No	Glass	No No
40 VA/10 MOM/30 MAA	No	Glass	Yes No
70 MAA/20 BA/10 2EHA	Yes	Glass	Yes No
70 MAA/20 BA/10 2EHA	No	Glass	Yes No
60 MAA/25 BA/15 MMA	Yes	Glass	Yes No
60 MAA/25 BA/15 MMA	No	Glass	Yes No
60 MAA/25 BA/15 MMA/5 AMPS	Yes	Glass	Yes No
60 MAA/25 BA/15 MMA/5 AMPS	No	Glass	Yes No
54 MAA/6 AA/25 BA/15 MMA	Yes	Glass	Yes No
54 MAA/6 AA/25 BA/15 MMA	No	Glass	Yes No
54 MAA/6 AA/25 BA/15 MMA/5 MOM	Yes	Glass	Yes No
54 MAA/6 AA/25 BA/15 MMA/5 MOM	No	Glass	Yes No

As can be seen from the above table, the '033 application discloses numerous embodiments of salt-sensitive emulsion polymers having a wide variety of different monomers. For example, the hydrophilic monomers recited in independent claims 1, 14, and 15 are exemplified in the '033 application by the inclusion of carboxylic acid and sulfonic acid monomers. The '033 application also discloses specific examples of the non-hydrophilic monomers recited in the claims, including alkyl acrylates, methacrylates, maleates, and vinyl esters. Moreover, the '033 employs resins which contains the hydrophilic and hydrophobic monomers in widely varying amounts.

8. That, in addition to the above examples, the '033 application provides abundant disclosure regarding suitable monomers, monomer amounts, molecular weight values,

emulsion polymerization techniques among other information useful to the production of suitable salt-sensitive polymers.

9. As of the filing date of the pending application, salt-sensitive polymers, *per se*, were known, such as those described in the Lion Corporation patents (US Patent Nos. 5,631,317; 5,317,063; and 5,312,883). Similarly, it was generally known at the time the pending application was filed, that the hydrophilic monomer/non-hydrophilic monomer balance in these resins could be adjusted to make polymers with different salt-sensitive behavior. The '033 application was significant in the field of salt-sensitive technology because it described how to make salt-sensitive resins as emulsions. Accordingly, while the choice and amounts of monomers should be carefully selected to achieve optimal performance for a particular application, the choice and relative amounts of hydrophilic monomer and non-hydrophilic monomers to make the colloid stabilized polymer salt-sensitive would be a matter of routine, or at least not require a great deal of trial when provided with the information contained in the pending application and '033 application. Indeed, a wide variety of monomers could be used to make salt-sensitive polymers.
10. Likewise, that it would be within the general knowledge of those skilled in the polymer arts to make a resin with the claimed glass transition temperature of -40°C to 105°C. That the Tg of the polymer can be easily controlled by the monomer composition, based on the Tg of the individual monomers.
11. Accordingly, in his technical opinion, a skilled artisan with knowledge of the above disclosures and with general knowledge in the art of salt-sensitive resins, could readily make and use the inventive webs to the full extent of the claimed subject matter without excessive experimentation, including the fabrication of suitable salt-sensitive resins having the compositions and properties recited in claims 1, 14, and 15. New claim 17 is also, in his opinion, enabled to its full scope because the pending application and the '033 application provide ample disclosure of suitable monomers, monomer amounts, and polymerization techniques. Additionally, given the general knowledge in the art at the time of filing that the hydrophilic/non-hydrophilic balance

could be controlled to adjust the salt-sensitivity, the relative amounts of the monomers to use would not require a great deal of experimentation.

12. The undersigned Declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the subject application or any patent issuing thereon.

Dated 24 October -2006



Steven P. Pauls, Sr.